2022 Spring Flood Outlook

February 10, 2022
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For the rivers and streams in northeastern SD, portions of central SD, and portions of west central MN

Key Messages

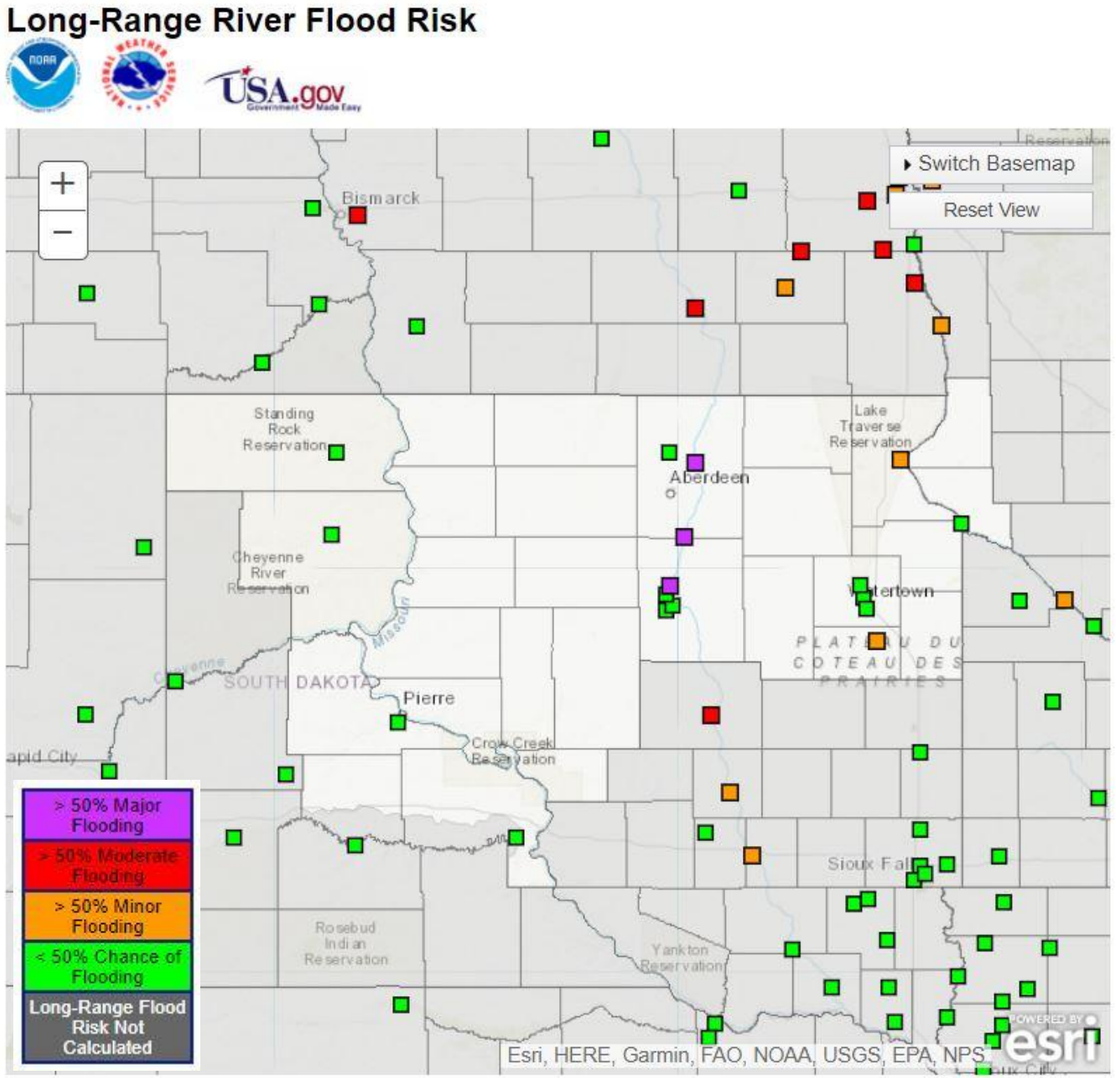
- Due to the very dry conditions across the area this winter and the lack of any significant snow cover across most of the region, the chances for minor, moderate or major flooding are below normal.

- The exception is across the James River basin in Brown and Spink counties, where the chances are above normal for moderate to major flooding due to the more extensive and wet snowpack in the upper portions of the basin in North Dakota.

- The flood threat through this spring, both in location and severity, will largely be determined by future rain or snowfall.

Next Scheduled Briefing

- The next outlook will be issued on February 24th



Temperature and Precip Outlook

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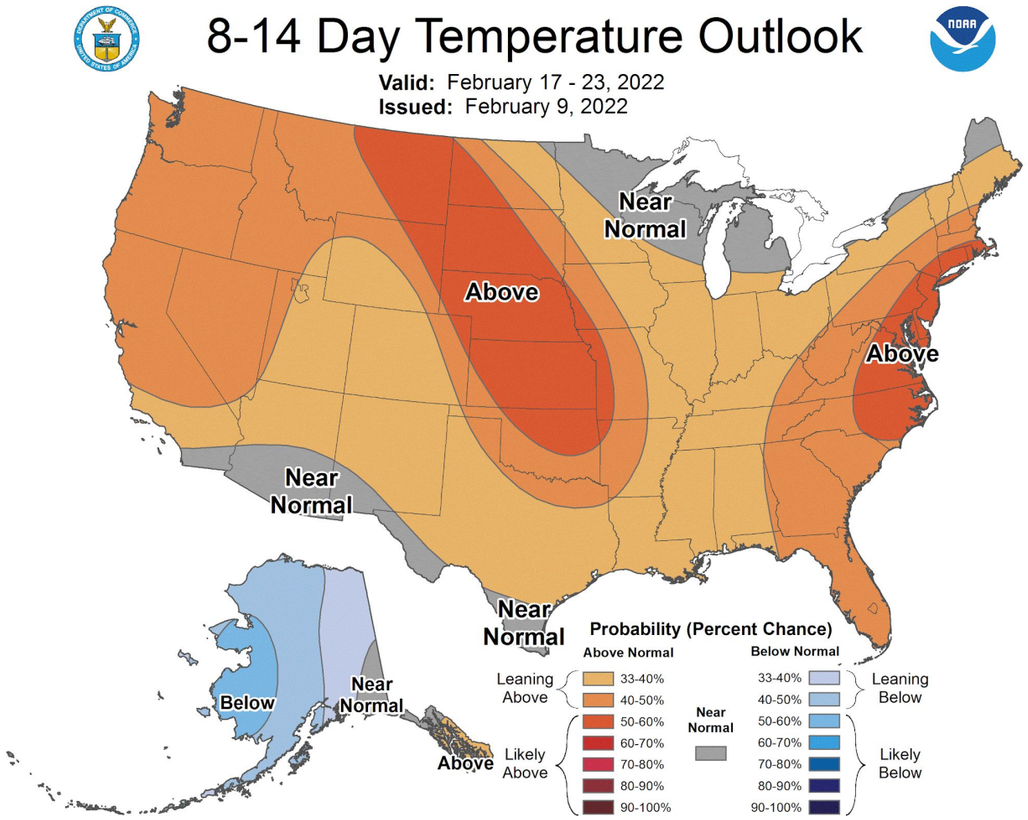
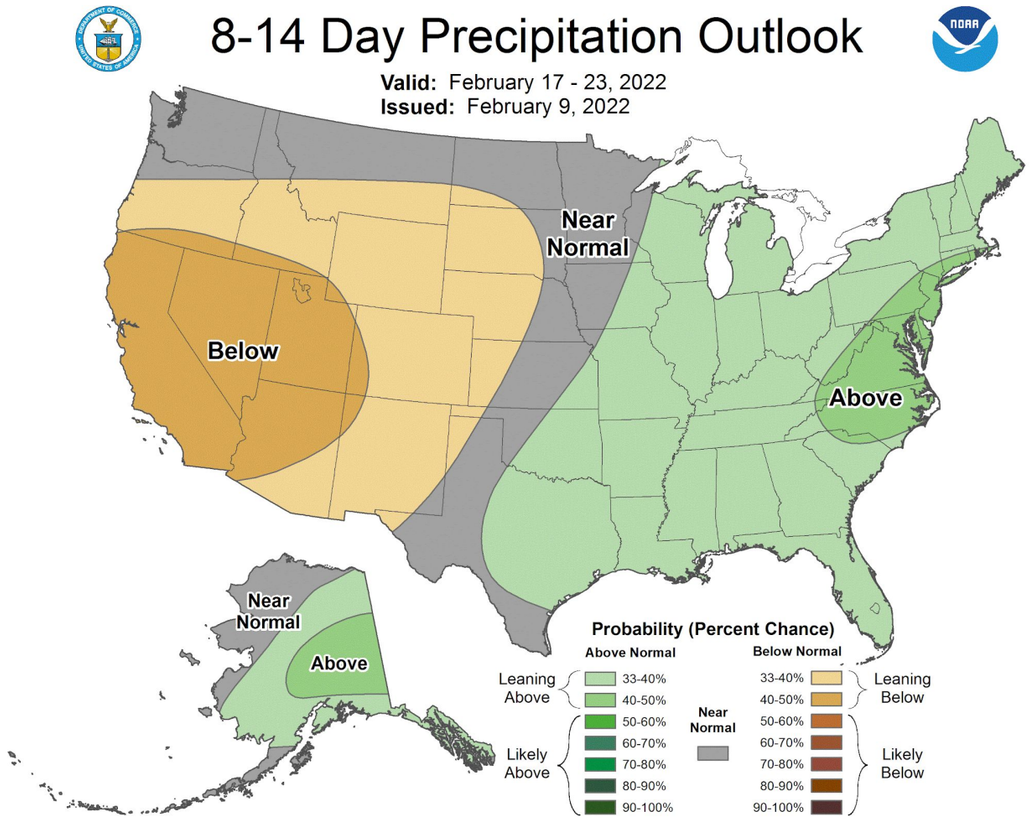
Overview

- The outlook for the next two weeks is for increased chances for above normal temperatures and below normal precipitation.
- The 90 day outlook for February through April shows equal chances for below, near or above normal precipitation, and equal chances for below, near or above normal temperatures.





Current Snow Pack

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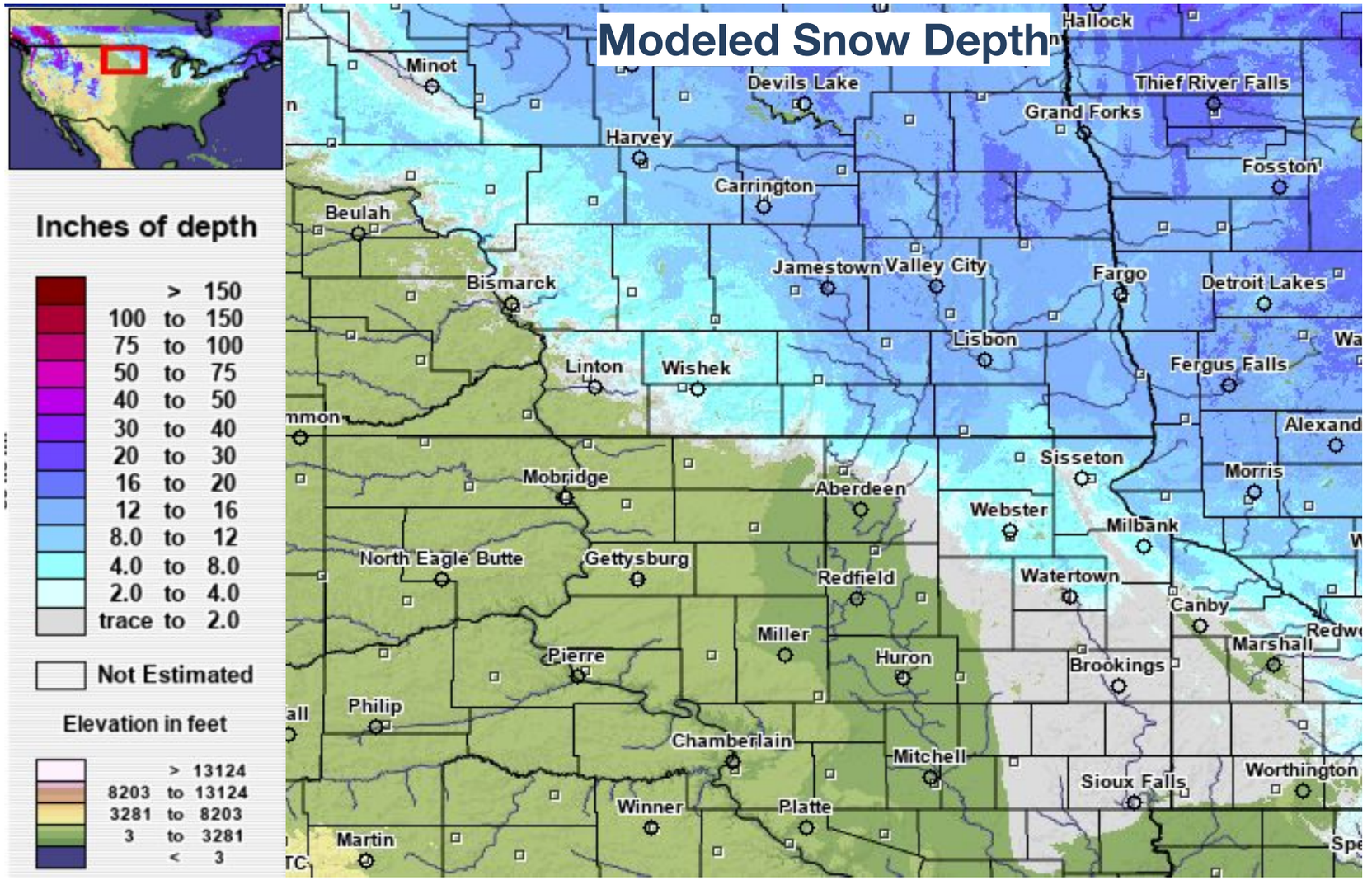
Overview

- The majority of the area has no snow pack.
- The exception is across northeastern parts of South Dakota and west central Minnesota, where snow depths of 2 to 10 inches are present.
- The higher amounts are along the North Dakota border near Britton, and in west central Minnesota.



Current Snow Water Equivalent

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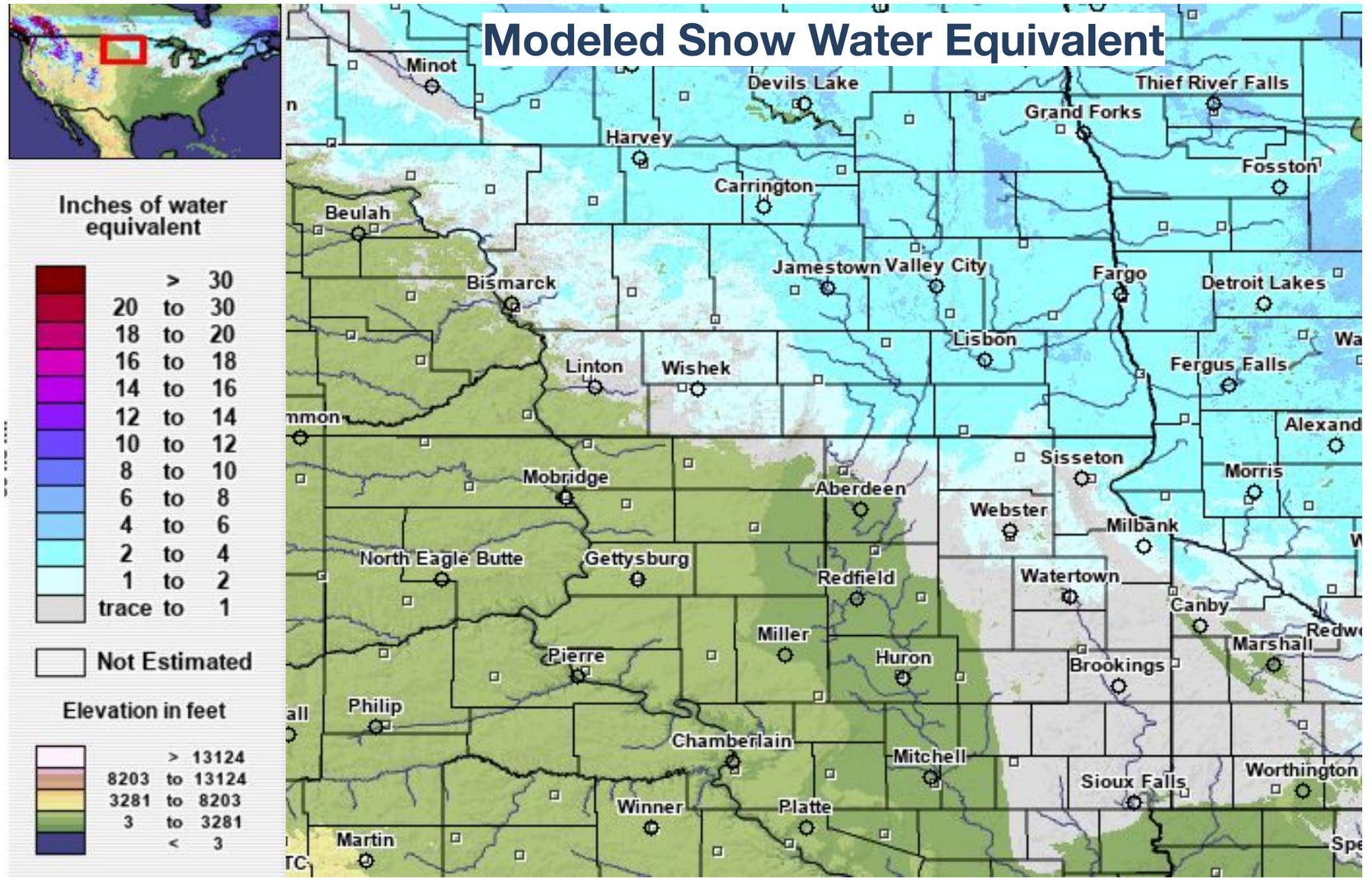
Overview

- The water equivalent of the snowpack is generally 0.5 to 1 inch, with 1 to 2 inches near Britton and in west central Minnesota.



Current Soil Conditions

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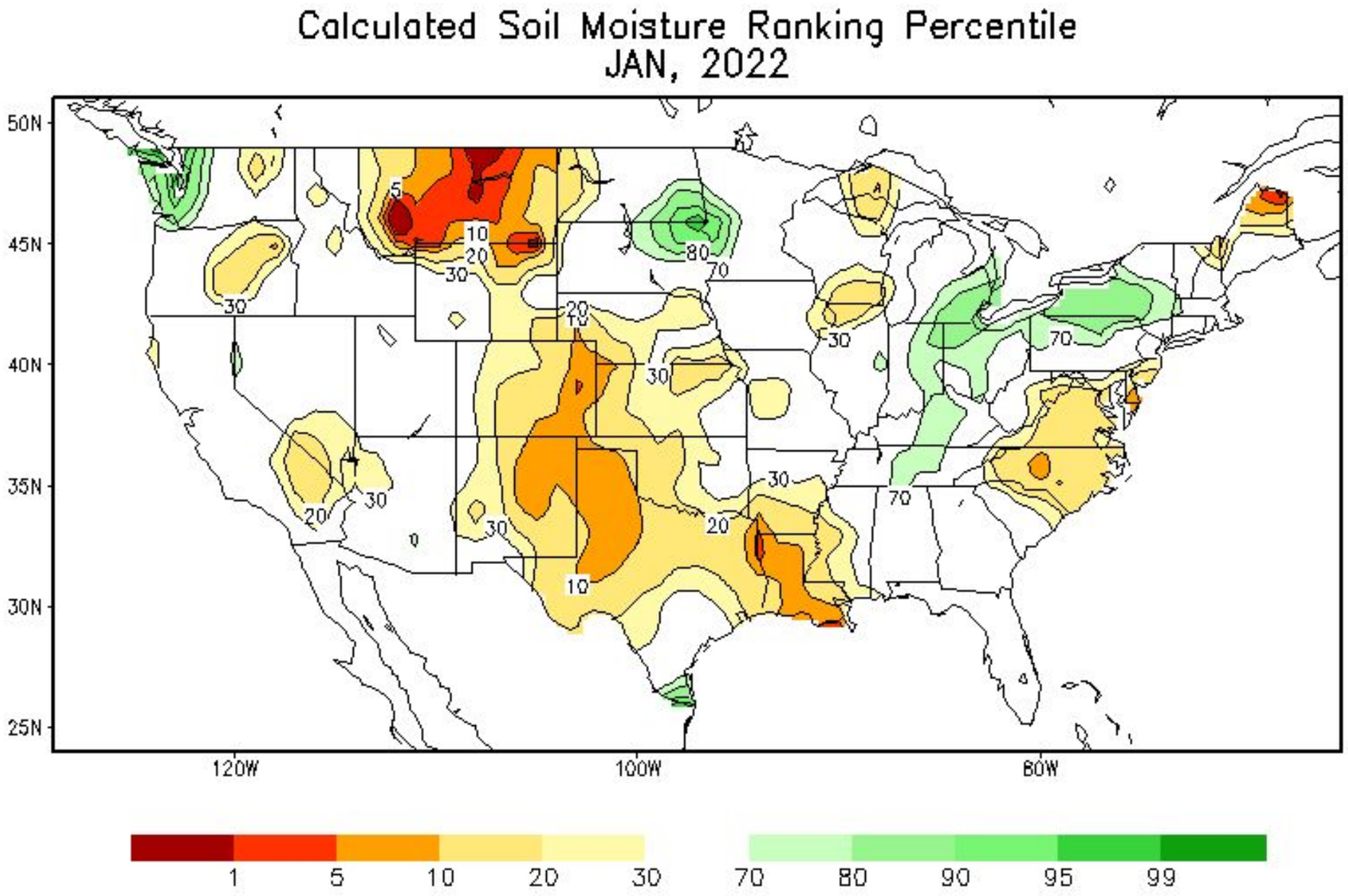
Overview

- Soil moisture is below normal across central South Dakota, and above normal across the east.
- Frost depths are generally in the 1 to 4 foot range.
- Portions of central South Dakota are currently in Abnormally Dry to Moderate drought conditions.



Current River Conditions

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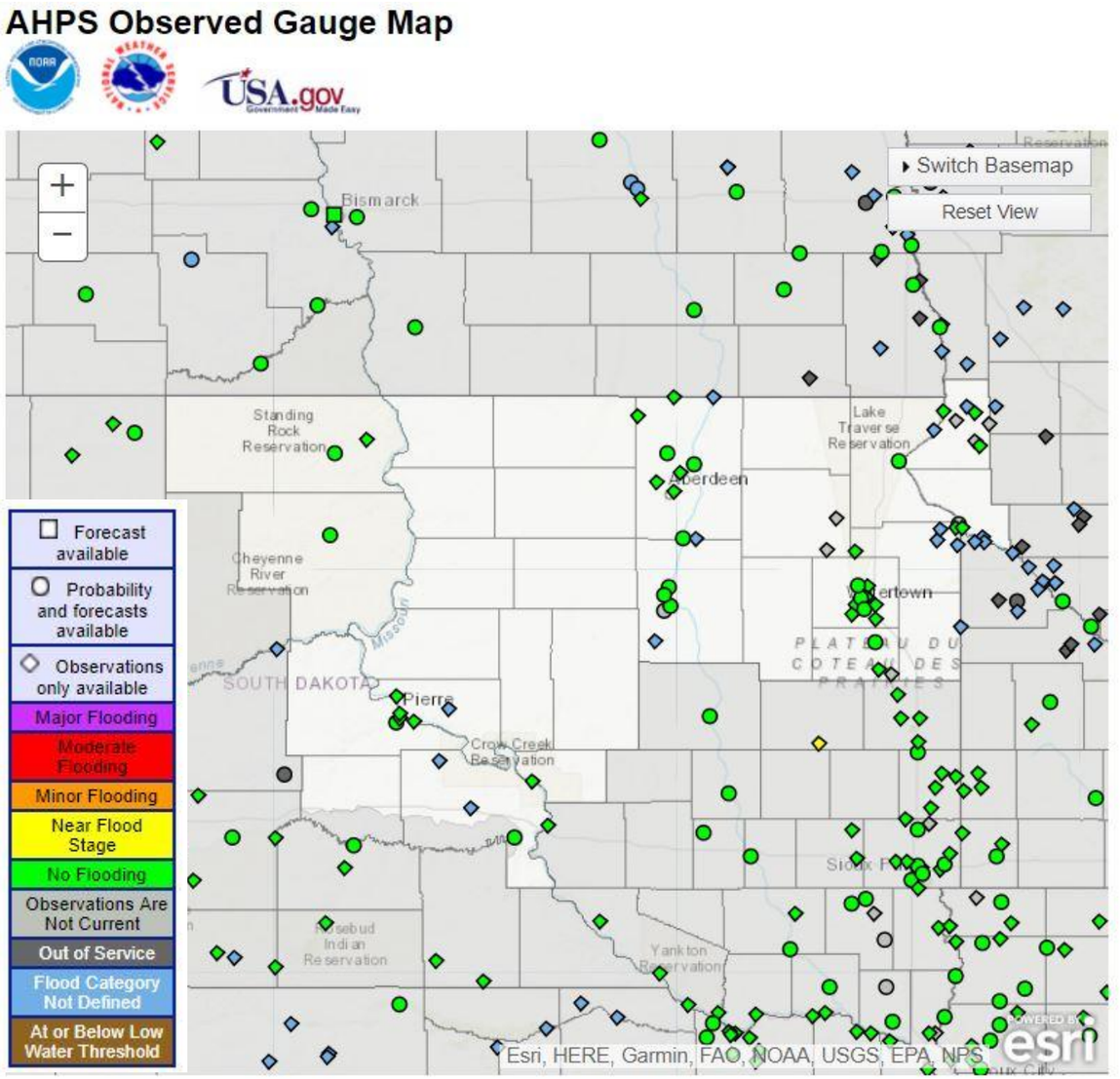
Overview

- All of the rivers in the area are iced over, though some loss of ice has likely occurred across central South Dakota with the recent warm temperatures.
- River levels and flows are generally running near to below normal across the region.
- The threat for break-up ice jams does exist as we head into this spring due to the recent and projected warm temperatures. Any potential ice jam flooding will be determined by how fast the ice melts and how much additional flow can get into the rivers to raise and break up the existing ice cover before it melts.



Probabilistic Outlooks

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Probabilities for minor...moderate and major flooding

Overview

- In Table 1 to the right...the current (CS) and historical (HS) or normal probabilities of exceeding minor...moderate...and major flood stages are listed for the valid time period.
- CS values indicate the probability of reaching a flood category based on current conditions.
- HS values indicate the probability of reaching a flood category based on historical or normal conditions.
- When the value of CS is more than HS...the probability of exceeding that level is higher than normal. When the value of CS is less than HS...the probability of exceeding that level is lower than normal.

...Table 1--Probabilities for minor...moderate and major flooding...
Valid Period: 03/14/2020 - 06/12/2020

Location	Categorical Flood Stages (FT) Minor	Mod	Major	Current and Historical Chances of Exceeding Flood Categories as a Percentage (%) Minor CS	Minor HS	Moderate CS	Moderate HS	Major CS	Major HS
:Elm River									
Westport	14.0	16.0	19.0	27	19	16	8	<5	5
:James River									
Columbia	13.0	16.0	18.0	>98	45	>98	34	>98	26
Stratford	14.0	17.0	18.5	>98	47	>98	37	92	23
Ashton	13.0	14.0	16.0	>98	46	>98	44	>98	35
:Turtle Creek									
Redfield	7.0	10.0	15.0	>98	33	47	25	16	17
:James River									
Redfield	20.0	22.0	25.0	89	32	68	30	46	28
:Big Sioux River									
Watertown	10.0	11.0	12.0	30	33	9	17	<5	6
Watertown Sioux C	9.0	10.0	12.0	96	57	66	44	16	27
Watertown Broadwa	10.5	11.0	13.5	61	40	44	37	<5	15
Castlewood	9.0	11.0	16.0	72	46	34	30	<5	<5
:Grand River									
Little Eagle	15.0	17.0	21.0	20	12	5	10	<5	<5
:Moreau River									
Whitehorse	21.0	23.0	25.0	10	9	5	7	<5	6
:Bad River									
Fort Pierre	21.0	25.0	27.0	8	5	<5	<5	<5	<5
:Little Minnesota River									
Peever	17.0	22.0	24.0	48	24	<5	<5	<5	<5
:Minnesota River									
Big Stone Lake	971.5	973.0	975.0	10	6	<5	<5	<5	<5

Probabilistic Outlooks

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Exceedance Probabilities

Overview

- In Table 2 to the right...the 95 through 5 percent columns indicate the probability of exceeding the listed stage levels (FT) for the valid time period.

...Table 2--Exceedance Probabilities...

Chance of Exceeding Stages
at Specific Locations
Valid Period: 03/14/2020 - 06/12/2020

Location	95%	90%	75%	50%	25%	10%	5%
:Elm River							
Westport	9.0	9.4	10.0	11.8	14.2	18.0	18.7
:James River							
Columbia	18.6	18.9	19.1	19.4	19.8	20.7	20.9
Stratford	18.4	18.6	19.0	19.4	20.0	21.1	21.5
Ashton	18.7	19.6	20.4	21.9	24.0	27.8	32.2
:Turtle Creek							
Redfield	8.9	8.9	8.9	9.8	11.6	17.0	17.7
:James River							
Redfield	18.6	19.8	21.4	24.8	28.7	32.9	33.7
:Big Sioux River							
Watertown	8.1	8.4	8.5	9.0	10.2	10.8	11.3
Watertown Sioux C	9.1	9.4	9.7	10.3	11.6	12.7	13.3
Watertown Broadwa	9.2	9.5	9.7	10.7	12.1	13.1	13.3
Castlewood	8.0	8.3	8.5	10.0	11.2	12.4	12.8
:Grand River							
Little Eagle	5.7	5.7	6.7	9.5	12.7	16.3	17.1
:Moreau River							
Whitehorse	6.2	6.2	6.2	11.4	14.6	21.1	23.6
:Bad River							
Fort Pierre	1.1	1.5	3.8	8.4	14.1	20.0	22.8
:Little Minnesota River							
Peever	13.9	14.0	15.1	16.9	19.0	20.9	22.0
:Minnesota River							
Big Stone Lake	968.8	968.8	968.8	968.9	969.8	971.5	972.5

Probabilistic Outlooks

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Non-Exceedance Probabilities

Overview

- In Table 3 to the right...the 95 through 5 percent columns indicate the probability of falling below the listed stage levels (FT) for the valid time period.

...Table 3--Nonexceedance Probabilities...

Chance of Falling Below Stages
at Specific Locations
Valid Period: 03/14/2020 - 06/12/2020

Location	95%	90%	75%	50%	25%	10%	5%
:Elm River							
Westport	5.6	5.5	5.2	5.1	5.0	5.0	5.0
:James River							
Columbia	15.3	15.3	15.3	12.9	10.7	10.3	9.6
Stratford	16.8	16.6	16.4	15.0	12.8	12.1	11.9
Ashton	15.7	15.6	14.7	10.8	8.6	7.8	7.5
:Turtle Creek							
Redfield	4.7	4.4	4.1	4.0	3.6	3.6	3.5
:James River							
Redfield	14.7	14.2	12.5	9.8	8.2	7.4	7.1
:Big Sioux River							
Watertown	4.9	4.8	4.7	4.6	4.6	4.5	4.5
Watertown Sioux C	7.3	6.9	6.5	6.2	6.2	6.2	6.2
Watertown Broadwa	7.2	6.6	6.1	5.9	5.8	5.8	5.8
Castlewood	6.0	5.6	5.2	5.0	4.9	4.8	4.8
:Grand River							
Little Eagle	3.4	3.4	3.3	3.3	3.2	3.2	3.2
:Moreau River							
Whitehorse	2.8	2.7	2.6	2.5	2.4	2.4	2.3
:Bad River							
Fort Pierre	1.0	1.0	1.0	1.0	1.0	1.0	1.0
:Little Minnesota River							
Peever	11.0	10.8	10.6	10.4	10.3	10.0	9.6
:Minnesota River							
Big Stone Lake	968.0	968.0	968.0	968.0	968.0	968.0	968.0

More Information

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These long-range probabilistic outlooks contain forecast values that are calculated using multiple season scenarios from 30 or more years of climatological data, including current conditions of the river, soil moisture, snow cover, and 30 to 90 day long-range outlooks of temperature and precipitation. By providing a range of probabilities, the level of risk associated with long-range planning decisions can be determined.

These probabilistic forecasts are part of the National Weather Service`s advanced hydrologic prediction service.

Visit our website weather.gov/abr or water.weather.gov/ahps2/long_range.php?wfo=ABR for more weather and water information.